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How Many Californians?

A Review of Population Projections for the State

By Hans P. Johnson

Summary

The level of plausible variation in California's future population requires serious consideration by policymakers and planners. Planning and building infrastructure for the wrong population can be costly. To give policymakers and others concerned with projecting population a sense of the range of projections and why the range is so wide, this report compares and analyzes population projections produced for the state by various organizations: the California Department of Finance, the U.S. Census Bureau, the U.S. Bureau of Economic Analysis, UCLA, and the Center for Continuing Study of the California Economy. Those projections are used in short- and long-range planning by local, state, and federal government agencies, as well as by private firms.

The current projections agree on some basic issues: Growth rates will be lower than in the past, but absolute levels of growth will remain high. Natural increase will have more effect than net migration on population growth. Domestic migration will be lower, while international migration will remain strong. California will still have higher growth rates than the rest of the country. However, the projections of future population and rates of population growth vary widely. For example:

- For 2025, the highest and lowest projections differ by more than 10 million people, with the lowest series projecting a population of 41.5 million and the highest projecting over 52 million. By 2040, the difference is over 16 million people (almost half the state's current population), with the lowest projection setting the state's future population at 46.8 million and the highest at 63.4 million.

- These projections imply very different rates of population growth between 1995 and 2025. In the highest projection, California will have another 20 million people by 2025,

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The level of plausible variation in California's future population requires serious consideration by policymakers and planners.

or 64 percent of the state's 1995 population. The lowest projection suggests only about 8 million more, or 29 percent of that population.

- The projections differ substantially in some characteristics of the state's future population: e.g., the size of the state's white population and the age structure.

Each of the projections is plausible if you accept its assumptions regarding migration to and from California. The differences in migration assumptions drive almost all of the differences among the various projections. Over the past 15 years, domestic migration between California and other states has fluctuated dramatically. It is possible that California is on the verge of a new demographic era, one in which the state no longer attracts more domestic migrants than it sends out. It is also possible that the state will return to its longtime demographic history of being a place that attracts more migrants from other states than it sends to those states. The lowest projections assume the former, while the highest projections assume the latter. The most recent evidence indicates that the large domestic migration losses of the early 1990s have ceased, although the state has not returned to the positive flows of domestic migrants that characterize the state's past.

Planners need to be aware of the range of plausible future population levels of the state, and should, accordingly, consider alternative scenarios in their planning.

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Context

The distinguishing feature of California's population is its tremendous dynamism. That dynamism is evident not only in California's rapid population growth, but also in the increasing diversity of the state's population. For decades, California's population growth rates have rivaled those of many less developed countries rather than typifying those of developed regions of the world. As recently as 1950, the state had only 10 million residents, less than one-third of today's 33 million. Over the past few decades, the state also experienced a dramatic increase in ethnic and cultural diversity. In 1970, white non-Hispanics accounted for almost 80 percent of the state's population; today, they account for approximately half of the state's population. By 2020, Latinos will be the single largest ethnic group in the state.

The sheer size of the state's population increase has important implications for almost all government services and functions including welfare, education, transportation, and corrections. Large increases in the state's population also have important implications for protection of natural resources, distribution of water, agriculture, and location and nature of development. No less important, but less predictable, is how the changing composition of the state's population will influence the state's economic evolution, its political representation, and its cultural identity or identities. Projections of 50 million Californians by 2025 suggest that policy issues related to population growth will become even more salient to policymakers. However, projecting future populations is an uncertain undertaking. The demographic future of California is very much in doubt. The recession of the early 1990s saw record numbers of domestic migrants leaving California. From 1990 through 1996, between 1 million and 2 million more people left California for other states than moved to California from the rest of the United States. At the same time, immigration (international migration) to the state increased substantially during the 1970s and 1980s and, though slowing, still remained substantial during the recession of the early 1990s. Some argue that the patterns of the early 1990s ushered in a new era of demographic change in California. Some predict that the state, once a magnet for migrants from the rest of the country as well as the world, will be the next demographic New York: a place that receives immigrants and sends out domestic migrants. Projections of the state's population are heavily influenced by assumptions about migration patterns.

In this report, we compare and analyze a number of long-term population projections for California. First, we discuss the projected populations, then compare the various methods and assumptions used to develop the projections, and finally discuss some implications of the comparisons. Additional charts, tables, and analyses are available on our website at *www.ppic.org*.

In California, domestic migration has been especially volatile over the past ten years.

Long-Term Projections for California

Three government agencies and two independent organizations produce long-term population projections for California: the California Department of Finance (DOF), the United States Census Bureau (CB), the United States Bureau of Economic Analysis (BEA), the Anderson Forecast at UCLA, and the Center for Con-

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Projections of the state's population diverge widely over time.

tinuing Study of the California Economy (CCSCE). The Census Bureau produces two sets of state population projections: Series A, the "preferred" series, and Series B, the "alternative" series. CCSCE produces three series of projections: high, middle, and low. Projections are revised every few years as additional data become available (e.g., a new census) or as population trends diverge from earlier projections. The BEA has ceased making economic and population projections.

The length of the projection series and the level of demographic detail vary among the series (see Table 1). The projections produced by the California Department of Finance and the Census Bureau are most directly comparable in terms of demographic detail. The Census Bureau projections extend to 2025, whereas all the other series extend to at least 2040.

Total Population and Growth Rates

Projections of the state's population diverge widely over time (see Figure 1 and Table 2). By 2025, the difference between the highest and lowest projection is greater than 10 million people, with the

Table 1. Sources of Long-Term Population Projections for California

Source	Projection Years	Year Issued	Demographic Detail
California Department of Finance (DOF)	1998–2040	1998	Single year of age; five race/ethnic groups; 58 counties
United States Census Bureau (CB)	1995–2025	1996	Single year of age; five race/ethnic groups; two series: preferred and alternative
United States Bureau of Economic Analysis (BEA)	1993–2045	1995	Broad age groups
UCLA Anderson Forecast	1996–2050	1998	Eight regions within the state
Center for Continuing Study of the California Economy (CCSCE)	1997–2050	1998	Broad age groups; subregions;* three series: high, middle, low

*Only total population projections for the entire state were available for this report.

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CB alternative series projecting a population of 41.5 million compared with UCLA's projection of over 52 million. The range in long-term projections is substantially less if we exclude the UCLA projections and all the alternative projections.[1] For example, the DOF projections, the CCSCE middle-series projections, and the CB preferred series agree that California will have almost 50 million residents by 2025, although they disagree about the timing of the

[1] By alternative projections, we mean the CB alternative projections and the CCSCE high and low series.

Figure 1. Total Population Projections for California

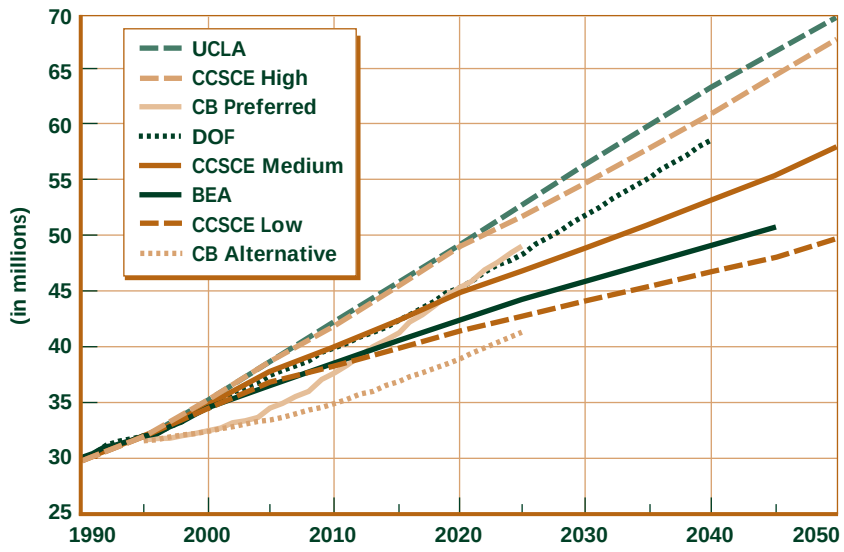

Table 2. Total Population Projections for California (in thousands)

Year	Department of Finance	Census Bureau Preferred	Census Bureau Alternative	BEA	UCLA	CCSCE Medium	CCSCE High	CCSCE Low
1990	29,942			29,905		29,758	29,758	29,758
1995	32,063	31,589	31,589					
1996	32,384	31,758	31,758		32,600			
1997	32,957	31,925	31,917			32,957	32,957	32,957
1998	33,506	32,100	32,078	33,398				
2000	34,653	32,521	32,423	34,470	35,247			
2005	37,372	34,441	33,511	36,657		37,800	38,769	36,831
2010	39,958	37,644	34,968	38,710	42,297	40,030	41,980	38,300
2015	42,371	41,373	36,838	40,686		42,432	45,439	39,850
2020	45,449	45,278	39,034		49,149	44,964	49,084	41,416
2025	48,626	49,285	41,480	44,372		46,917	51,846	42,706
2030	51,869				56,472	48,955	54,749	44,036
2035	55,210					51,081	57,798	45,407
2040	58,731				63,418	53,300	61,002	46,821
2045				50,731		55,615	64,367	48,277
2050					69,823	58,031	67,901	49,779

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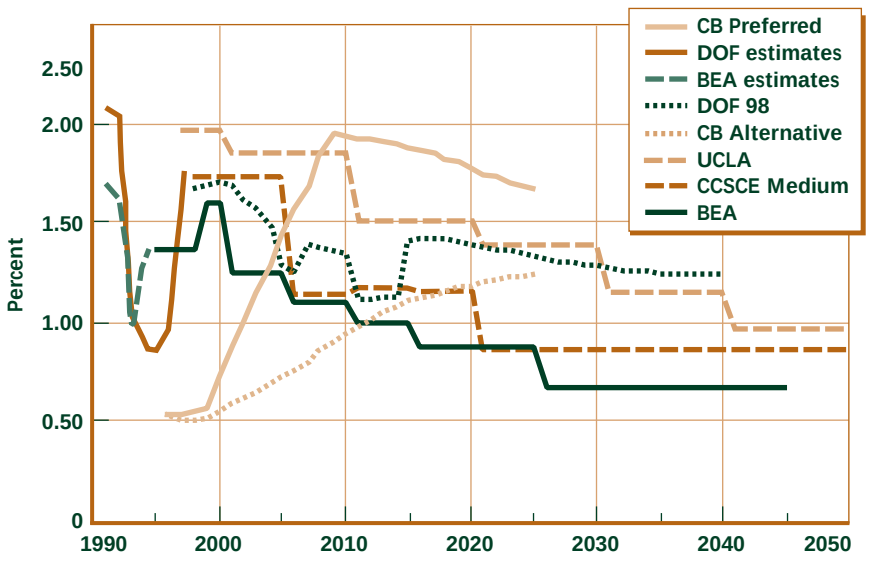
Figure 2. Population Growth Rates: Annual Percentage Change



state's population growth between now and 2025. By 2040, the difference between the highest and lowest projections increases to over 16 million people (almost half the state's current population), with UCLA projecting 63.4 million Californians and the CCSCE low series projecting only 46.8 million.

These projections imply very different levels of population growth. The highest projections suggest that California will need to accommodate another 20 million people by 2025, while the lowest suggest the state's population growth will total only about 8 million people between 1995 and 2025. Total population increases would amount to 29 percent of the state's 1995 population according to the lowest series, compared with 64 percent according to the highest series.

The projections show substantial differences even in the short run. Both Census Bureau series project substantially lower population totals than do the other series. For example, the CB series project fewer than 34.5 million California residents in 2005 whereas the DOF projects 37.4 million Californians. This short-term difference is a product of both differing projections of growth and differing current estimates of the state's population at the time the projections were made. During the 1990s, the Census Bureau estimates of the state's population have increasingly diverged from those produced by the DOF: By 1998, the Census Bureau estimates were lower than the DOF estimates by more than 800,000.

As shown in Figure 2, annual growth rates implied by these projections are substantially different—especially the initial projected growth rates, in which the CB projections are three times higher than the DOF projections. The large disparity in initial rates results from differing base years for the projections. The CB projections were developed at a time when the most recent estimates suggested substantial domestic out-migration from California and population growth in the state was quite slow by historic standards.

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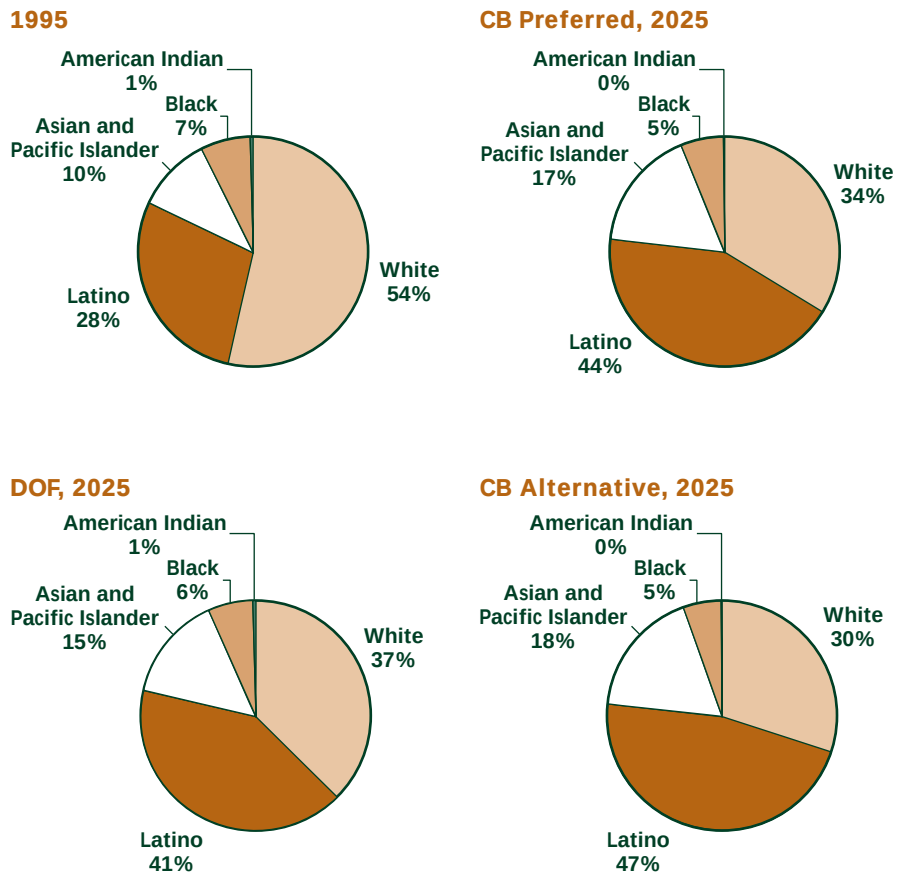
Although the CB projected growth rates are higher than growth rates experienced by the state in the recession, the CB projections did not anticipate the dramatic short-run change in growth rates that occurred between 1994 and 1998 (see Figure 2). Again, if we exclude the alternative series (CCSCE high, CCSCE low, and CB alternative), the range of long-term projections is substantially narrowed.

Population by Race/Ethnicity

Only the projections by the California Department of Finance and the Census Bureau provide race/ethnic detail. While the DOF and CB projections agree on the direction of race/ethnic distributional changes in the state's population, the projections differ on the magnitude of those changes (see Figure 3). In particular, the DOF projects that a somewhat larger share of the population will be white and a somewhat smaller share will be either Latino or Asian and Pacific Islander than the CB projects. According to the CB projections, no race/ethnic group currently constitutes a majority of California's population. According to the DOF projections, that state will be reached between July 2000 and July 2001. The CB preferred series projects that by 2014 Latinos will be the largest single race/ethnic group in the

Figure 3. California Population by Race/Ethnic Distribution



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state, whereas the DOF projection places that date at around 2021.

In absolute terms, the difference between the CB alternative series and the DOF projections is especially pronounced for whites, with the DOF projecting almost 6 million more whites by 2025 than the CB alternative projections (see Table 3). The lower population of whites in the CB series can be attributed to projected continuing net domestic migration losses. Domestic migrants, both to and from California, are more likely to be white than are immigrants or non-migrants in the state.

Age Structure

An easy way to summarize the age structure of a population is to examine the dependency ratio. The dependency ratio is the number of people of nonworking age (less than 18 and over 65) for every 100 people of working age. It provides a rough indicator of a population's ability to support nonworking members. The DOF, CB, and BEA projections each provide projections by age. As shown in Figure 4, California's dependency ratio is projected to increase substantially after 2010,

Table 3. Population Projections by Race/Ethnicity (in thousands)

		1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
White	DOF	17,180	17,422	17,731	17,902	17,969	18,123	18,216	18,222	18,141	18,005
	CB Preferred	16,630	15,562	15,123	15,394	15,838	16,261	16,626			
	CB Alternative	16,631	15,501	14,537	13,771	13,201	12,788	12,477			
Latino	DOF	9,101	10,689	12,301	13,964	15,643	17,778	20,085	22,547	25,199	28,091
	CB Preferred	9,207	10,646	12,268	14,215	16,410	18,757	21,232			
	CB Alternative	9,206	10,628	12,101	13,691	15,433	17,289	19,243			
Asian and Pacific Islander	DOF	3,338	3,999	4,684	5,314	5,815	6,474	7,128	7,786	8,441	9,092
	CB Preferred	3,380	4,006	4,731	5,602	6,549	7,539	8,564			
	CB Alternative	3,379	3,995	4,635	5,309	6,026	6,786	7,582			
Black	DOF	2,251	2,338	2,434	2,541	2,691	2,806	2,918	3,024	3,128	3,234
	CB Preferred	2,184	2,138	2,158	2,268	2,406	2,544	2,679			
	CB Alternative	2,184	2,129	2,083	2,054	2,042	2,042	2,051			
American Indian	DOF	193	206	222	237	253	266	279	290	300	309
	CB Preferred	189	170	162	165	170	176	183			
	CB Alternative	189	169	154	143	135	130	127			

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as large cohorts of baby boomers begin to enter retirement ages. Because of the certain aging of the baby boom, there is little variation in projections of overall dependency ratios.

To the state government, however, the most important component of the dependency ratio is that attributable to children, because the state is the primary provider of services to children (via education) and provides relatively few services to the elderly. After a substantial rise in the child dependency ratio during the 1990s, the DOF and BEA series project a decline to the mid-2010s, followed by an increase (see Figure 5). This is a welcome short-term trend for a state trying to catch up with large increases in public school attendance. The CB projections show an increase in the child dependency ratio from 1995 to the first few years of the next century, before declining to the mid-2010s. After 2015, however, all the series project that the child dependency ratio will increase substantially, rising to levels not seen since the early 1970s according to the DOF projections.[2] The BEA projections show the same long-term pattern, but the increases are substantially lower.

Figure 4.
Historic and Projected Dependency Ratios for California

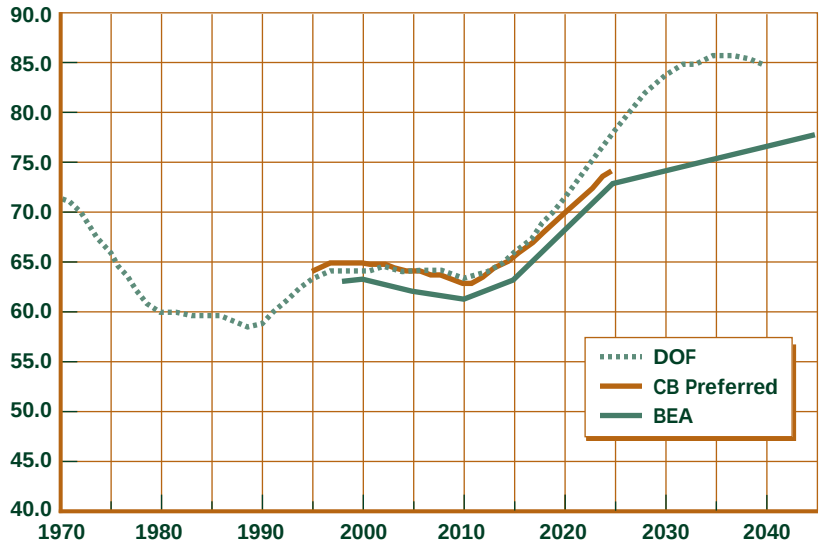
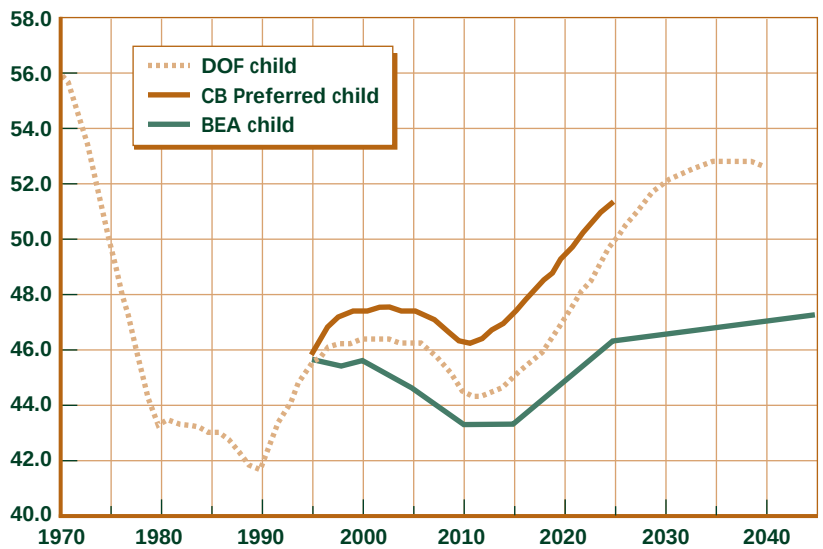


Figure 5.
Historic and Projected Child Dependency Ratios for California



[2] The higher child dependency ratio projections based on the CB preferred series are due to higher fertility projections. The lower BEA projections are based on a method that does not explicitly consider fertility.

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Despite their wide disparities, the current projections agree on some basic issues.

Methods and Assumptions of the Projections

Although some of the variation in the population projections results from differing methodologies, the most important source of variation is differing assumptions. Assumptions differ largely because population trends differed when the projections were developed. Most projections weight recent trends heavily in forecasting long-term trends.

Methods

Methods used to project California's population range from the computationally complex "multi-state cohort component projection" technique employed by the Census Bureau to the simple derivative approach employed by UCLA. The projections can be classified into three types: (1) purely demographic (DOF, CB preferred); (2) demographic and economic (CB alternative, BEA, and CCSCE); and (3) derivative extrapolations (UCLA). The purely demographic approaches of the DOF and the CB preferred projections rely on an analysis of historical trends in the components of population change: births, deaths, and migration. This approach implicitly assumes that factors that led to such trends in the past will continue in the future. The methods that incorporate economic factors do so because employment is assumed to drive population growth through migration. Migration, especially domestic migration, to or from California responds strongly to employment opportunities in California versus the nation. The methods employed by CCSCE, BEA, and the CB alternative series use projections of employment to determine future populations of the state. UCLA's projections are primarily based on and extrapolated from an earlier set of projections produced by the Department of Finance, but also include a subjective assessment of recent economic conditions in the state. Finally, some of the state projections consider national population projections (CCSCE, BEA, CB), while others do not (DOF, UCLA).

More complex methods do not necessarily produce more accurate projections, although they might provide details (such as populations by age and gender) that are necessary to the user. Key sources of uncertainty are future employment, domestic migration, and fertility. For example, a decline in fertility rates could lead to substantially lower population projections over the long term for California than the DOF and CB projections currently envision.

Assumptions

When projections are developed partly explains differences between them. The most recent economic and demographic trends available at the time a projection is made are important factors in projecting future trends. In California, domestic migration has been especially volatile over the past ten years. The CB and BEA projections were developed when the most recent data showed massive domestic out-migration from California. Since those projections were developed, however, the large domestic migration outflows have ceased. The DOF, CCSCE, and UCLA projections were all developed after this turnaround, and thus show higher short-term projections. Figure 6 shows the importance of timing for the projections by comparing the DOF and CB migration estimates and projections.

Accuracy, Agreement, and Implications

Demographers have not been particularly successful in identifying and forecasting turning

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points in population growth. For example, two of the most profound demographic events in the last half of the twentieth century, the baby boom and the baby bust, were not accurately foreseen by demographers.

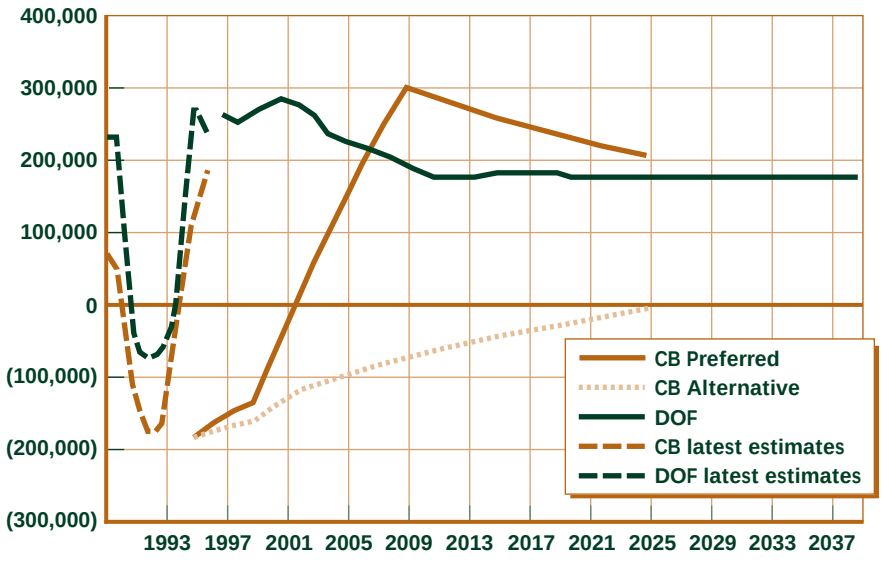
It is not clear which of the current projections for California are most accurate. Based on when the projections were developed, we can conclude that the CB and BEA projections are too low, at least in the short run. In the long run, the wide range of current population projections reflects the uncertainty of California's demographic future. Although the short-term projections of the CB and BEA are too low, any of the long-term population projections could be realized. None of the scenarios represented by the projections are unrealistic. The highest projection series (UCLA) implies annual growth rates for California that are lower than for any comparable historic period. The lowest projection series (CCSCE's low series) assumes that California's share of national employment growth will be only moderately lower than in the past.

Despite their wide disparities, the current projections agree on some basic issues:

- California's future growth rates will be generally lower than past rates, though absolute levels of growth will remain high.
- Natural increase will be a greater source of population growth in the state than net migration.
- Domestic migration is not forecast to be as great as in the past, while international migration will remain strong.
- California growth rates will still exceed those of the rest of the nation.

The level of plausible variation in California's future population requires serious consideration by policymakers and planners. Prudent planners should consider several different future levels of California's population in developing their plans. Planning and building infrastructure for the wrong population can be costly. These costs should be explicitly considered and evaluated in developing plans for alternative future scenarios. ◆

Figure 6. Estimates and Projections of Net Migration
Census Bureau and Department of Finance



In the long run, the wide range of current population projections reflects the uncertainty of California's demographic future.

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Our web site version of this report contains two appendices with additional tables, charts, and discussions of California population projections. We also provide links to the web sites of the organizations that produce population projections for California.

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